



## Extreme value indicators in highly resolved climate change simulations for the Jordan River area

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### Abstract:

Understanding changing trends and frequency of extreme rainfall and temperature events is extremely important for optimal planning in many sectors, including agriculture, water resource management, health, and even economics. For people living in the Jordan River region of the Middle East such changes can have immediate devastating impacts as water resources are already scarce and overexploited and summer temperatures in the desert regions can reach 45 degrees C or higher. Understanding shifts in frequency and intensity of extreme events can provide crucial information for planning and adaptation. In this paper we present results from regional climate model simulations with RegCM3 and MM5 centered on the eastern Mediterranean region. Our analysis focuses on changes in extreme temperature and rainfall events. We show that maximum daily summer temperature is expected to increase by between 2.5 degrees C and 3 degrees C, with an increase in warm spell length. Precipitation extremes are expected to increase with longer dry spells, shorter wet spells, and increases in heavy rainfall. Model agreement for the control period 1961- 1990 is higher in the southern region than in the north, perhaps because of the complex topography, suggesting that even small differences in spatial scale play an important role. In addition, we notice that the chosen global model plays an important role in determining future temperature trends, while the choice of regional climate model is critical for understanding how precipitation is expected to evolve.

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### Resource Description

#### Climate Scenario :

specification of climate scenario (set of assumptions about future states related to climate)

Special Report on Emissions Scenarios (SRES), Other Climate Scenario

**Special Report on Emissions Scenarios (SRES) Scenario:** SRES A1

**Other Climate Scenario:** A1B

#### Communication:

resource focus on research or methods on how to communicate or frame issues on climate change;  
 surveys of attitudes, knowledge, beliefs about climate change

A focus of content

# Climate Change and Human Health Literature Portal

## **Communication Audience:**

audience to whom the resource is directed

Policymaker, Researcher

## **Exposure :**

weather or climate related pathway by which climate change affects health

Extreme Weather Event, Temperature

**Extreme Weather Event:** Drought, Flooding

**Temperature:** Extreme Heat

## **Geographic Feature:**

resource focuses on specific type of geography

Desert, Ocean/Coastal

## **Geographic Location:**

resource focuses on specific location

Non-United States

**Non-United States:** Asia

**Asian Region/Country:** Other Asian Region

**Other Asian Region:** Jordan River region

## **Health Impact:**

specification of health effect or disease related to climate change exposure

Injury

## **Mitigation/Adaptation:**

mitigation or adaptation strategy is a focus of resource

Adaptation

## **Model/Methodology:**

type of model used or methodology development is a focus of resource

Exposure Change Prediction

## **Resource Type:**

format or standard characteristic of resource

Research Article

## **Timescale:**

time period studied

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Medium-Term (10-50 years)

## **Vulnerability/Impact Assessment:**

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content